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**Support for AppleWorks and ///EZ Pieces Users**

# Happy Anniversary, AppleWorks!

Welcome to the 94th issue of the *AppleWorks Forum*.

Unless you're talking about birthdays, there is usually nothing special about the 94th of anything. The 94th page of a book. Your 94th trip to the store. The 94th story of a building. Nothing special.

But the 94th issue of the *AppleWorks Forum* is special because it celebrates two anniversaries: The tenth anniversary of AppleWorks and the beginning of the ninth year of the *AppleWorks Forum*.

If you are an AppleWorks old-timer, you have seen AppleWorks evolve over the past decade from a pioneering integrated application into a feature-laden operating environment. And although many of us would be uncomfortable limiting ourselves to using AppleWorks 1.1 on a 128K Apple IIe with 5.25-inch disk drives, thousands of AppleWorks users still work productively in that environment.

This issue includes two articles to help you celebrate the anniversary of AppleWorks. In the first, Cindy Field, Warren Williams, and Cathleen Merritt look back on the history of the program. Their piece answers some interesting questions, including "Why didn't Apple ever advertise AppleWorks?"

In the second article, Randy Brandt looks at the future of AppleWorks. He describes the newest version of AppleWorks (AppleWorks 4.3, which is being released as this issue of the *AppleWorks Forum* goes to press) and gives you a peek at the future with his announcement of AppleWorks 5.

We hope you enjoy the issue. And, if you get the chance, take a few moments to reflect about that time when you first started exploring AppleWorks. If you are like most of us, you had no understanding of the impact of your early explorations on your electronic future.

### How to Use an ImageWriter LQ

Dear NAUG:

Here's a tip for my NAUG colleagues trying to use an ImageWriter LQ with AppleWorks.

Check the DIP switches on the ImageWriter to make certain they match the baud rate settings of the printer port on your Apple II.

The ImageWriter LQ comes factory set at 19,200 baud, but the default printer port setting on the IIGS is 9600 baud, which is the appropriate setting for the ImageWriter II. Apple IIGS owners should change the printer port setting to match the 19,200 default setting on the ImageWriter LQ.

Apple IIe owners can change their Super Serial Card to 19,200 baud by setting the first four settings on DIP switch #1 to OFF.

Apple IIc owners should change the DIP switch settings on the printer to 9600 baud, which is the fastest speed supported by the IIc.

Art Umland  
Hartford, South Dakota

The **National AppleWorks Users Group (NAUG)** is an association that supports AppleWorks users. **NAUG** provides technical support and information about AppleWorks and enhancements to that program. Our primary means of communicating with members is through the monthly newsletter entitled the *AppleWorks Forum*.

## AppleWorks Forum

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## Letters to NAUG...

### Using 8-Bit Program Selectors with an Apple IIGs

Dear NAUG:

Dan Crutcher's article in the February 1994 issue of the *AppleWorks Forum* convinced me that I should boot into ProDOS-8 on my Apple IIGs system.

I want to use Sneeze (renamed "STARTUP") as my 8-bit program launcher. But after following the directions in the article, I get left at the BASIC prompt when I quit from AppleWorks. What should I do so I can boot my IIGs into ProDOS-8 and use Sneeze?

Jack Countryman  
Greenburg, Indiana

*[Dan Crutcher replies: Mr. Countryman is correct. Here is a better way to configure your IIGs so you boot into ProDOS-8 and use Karl Bunker's Sneeze utility (or any other 8-bit program launcher) to launch AppleWorks and other 8-bit programs:*

1. Rename "Startup" (now the Sneeze program) back to "Sneeze".
2. Launch BASIC and type the following:

```
10 PRINT CHR$(4) "-SNEEZE"  
SAVE STARTUP
```

*If you keep BASIC.SYSTEM as the first .system program in your boot directory, the new Startup program will run Sneeze even when you quit from another application.*

*Once you make this change, the copy of BASIC.SYSTEM in your boot directory will always launch Sneeze. To get into BASIC, you need to keep a copy of BASIC.SYSTEM in another directory.*

*I'm not sure why this works any better than just renaming Sneeze to "STARTUP", but it does.]*

### A SuperWorks Update

Dear Cathleen,

What is the latest news about SuperWorks? Are there any new versions of the program?

William Whiteside  
Cottage Hills, Illinois

*[Ed: SuperWorks is a powerful AppleWorks work-alike that runs under MS-DOS on IBM-compatible computers. A favorable review of SuperWorks 2.0 appeared in the March 1992 issue of the *AppleWorks Forum*.*

*Remarkable Technologies is now shipping SuperWorks 3.1, which includes dozens of features not available in earlier versions of the program. The complete list of enhancements is too long to print here, but the changes include a major upgrade to SuperWorks' macro capability, easier installation, more comprehensive on-line help, on-the-fly file compression, support for more printers including LaserJet 2, 3, and 4-series printers (but not "p"-series LaserJets) and PostScript-compatible printers, enhanced screen control that lets you display more spreadsheet data on the screen, capability to import WordPerfect files, support for CRC error correction when communicating, easier data entry in data base files, ability to export data in dBase format, simultaneous display of graphs and underlying spreadsheets, improved charting capabilities, and dozens of other improvements.*

*SuperWorks 3.1 comes in four versions: Standard (List: \$99.95), NT for networks (List: \$1495), PT for palmtop computers like the Hewlett-Packard palmtops (List: \$99.95), and Lite (List: \$49.95), which limits you to six files on the desktop, does not include a print spooler, only imports ASCII files, does not support macros, limits all files to a maximum of 1000 lines or records, limits desktop memory to 300K, does not let you Alt-X to DOS, and does not provide an automatic dialer.*

*Until November 1, NAUG members can buy any version of SuperWorks for 40% off its regular price. Identify yourself as a NAUG member and provide your NAUG membership number to qualify for his special discount. NAUG members can also upgrade from earlier versions of SuperWorks for \$48.95 (List: \$69.95). Add \$5 s/h to all US orders; international postage additional. Remarkable Technologies offers a 30-day satisfaction guarantee on SuperWorks.*

*Remarkable Technologies, 245 Pegasus Avenue, Northvale, New Jersey 07647; (800) 782-1955; Fax: (201) 767-7227.]*

# AppleWorks: The First Decade

by Cynthia E. Field, Warren Williams, and Cathleen Merritt

---

*With this issue, NAUG celebrates the tenth anniversary of AppleWorks and the publication of the 94th consecutive issue of the **AppleWorks Forum**. This article reviews AppleWorks' and NAUG's shared history and celebrates AppleWorks' popularity and longevity. In the following article, Randy Brandt looks at the future of AppleWorks.*

---

When historians recount the development of personal computing, two trend-setting products are always mentioned: VisiCalc and AppleWorks.

VisiCalc, which was written for the Apple II in 1979, gave accountants and other number crunchers a practical reason to invest in the new microcomputer technology. For many users, VisiCalc legitimized the business applications for the Apple II.

But no program has had a more significant impact on mainstream microcomputer users than AppleWorks, which was the first successful integrated program developed for any computer platform. By combining three useful applications and an electronic clipboard in one inexpensive package, AppleWorks let you "cut and paste" seemingly incompatible bits of information from word processor, data base, and spreadsheet documents.

## AppleWorks' History

Although not released until 1984, AppleWorks had its real beginnings three years earlier, when Robert Lissner, the author of AppleWorks, created QuickFile, an Apple II data base manager eventually marketed by Apple Computer.

Lissner's experience with QuickFile and his discussions with Don Williams at Apple led him to start work on AppleWorks, then called "Apple Pie".

Apple Pie was unique. Unlike other productivity packages, Apple Pie offered capable word processor, data base, and spreadsheet modules and a way to transfer data between these modules. Key to the

program's success was its carefully designed user interface with easy-to-understand menus and a way to navigate between the modules in the program.

Lissner wanted to develop Apple Pie for the Apple II, but the executives at Apple all had new Apple III systems on their desks, so he created both Apple II and Apple III versions of the program. The Apple II and Apple III versions of Apple Pie shared the same source code, so each feature added to AppleWorks was shared by both systems. *[Ed: For more details, see Robert Lissner's letter to NAUG published in the November 1988 issue of the **AppleWorks Forum**.]*

Apple bought the rights to AppleWorks for the Apple II and released the program in 1984. Lissner sold the rights for the Apple III version of AppleWorks to Haba Software, which released the product as */// Easy Pieces* a few months later.

## Apple's Ambivalence

AppleWorks quickly became the most popular program in the history of computing. But, despite its success, Apple remained ambivalent about the program because of complaints from software developers who were concerned that they could not compete with Apple's product.

As a result, Apple was almost embarrassed by the success of AppleWorks. The company never advertised the program and took steps to "spin-off" all its non-system software to a new software company that would eventually be independent from Apple. These plans culminated with the creation of Claris Corporation in 1987.



## General Interest...

### Timeline: AppleWorks – A Classic in the Making

| <u>Version</u>                     | <u>Year</u>  | <u>Major Review</u>                     | <u>Reviewer</u>                  | <u>Reviewer's Comments</u>   |
|------------------------------------|--|---|----------------------------------|--|
| Version 1.1                        | 1984   | InfoWorld<br>December 10, 1984          | Mark E. Renne                    | "AppleWorks...is a weak offering because of the limitations of each of its modules. For business uses, it is nearly unacceptable; for personal use, it might suffice, though the price is high."   |
| Version 1.3                        | 1986   | InfoWorld<br>April 28, 1986             | Cynthia E. Field                 | "AppleWorks...is flexible, convenient, and easy to master, and with its new Unidisk 3.5 drive and RAM-card capability, greatly improved in performance and potential."   |
| Version 2.0                        | 1988   | Begin Computing<br>Special Edition 1988 | Eric Grevstad                    | "It began as a simple database for Apple's own office use. Today, it tops Lotus 1-2-3 in some estimates as the most widely used personal-computer program."  |
| Version 3.0                        | 1989   | inCider/A+<br>August 1989               | Eric Grevstad                    | "Sound the trumpets! AppleWorks 3.0 has arrived, and the classic 8-bit program has gone from greatness to grandeur."   |
| Version 4.0                        | 1993   | AppleWorks Forum<br>February 1994       | Keith Johnson<br>& Ira M. Garvin | "This latest version includes dozens of time-saving powerful features. The result is an AppleWorks that elicits a new level of performance from your Apple II, while retaining the ease of use and feel of the earlier versions of the program." |
| <b><u>Significant Features</u></b> |  |   |                                  |  |
| Version 1.1                        | Runs error-free, not copy-protected, easy to use, excellent documentation.   |   |                                  |  |
| Version 1.3                        | Supports expanded memory, bigger clipboard, larger documents, databases, and spreadsheets.   |   |                                  |  |
| Version 2.0                        | Offers mail merge, more spreadsheet functions, support for TimeOut series.   |   |                                  |  |
| Version 3.0                        | Includes more than 100 new features, built-in spell checker, jointly developed by Claris Corporation and Beagle Bros.  |   |                                  |  |
| Version 4.0                        | Dozens of new features, three desktops, incorporates many former add-on's, built-in TimeOut engine and macro player, more powerful data base module, published by Quality Computers. |   |                                  |  |

### Apple II Competition

Despite the lack of advertising, AppleWorks out-sold all other productivity programs, and Apple's success continued to be noticed by other Apple II developers.

From 1984 to 1986, several companies tried to compete with AppleWorks for market share among Apple II users. But AppleWorks was never seriously threatened by competitors such as Magic Office, BetterWorks, Nine to Five, Foundation, Personal Choice, Do-Re-Me, or any other of the AppleWorks "wannabees".

AppleWorks' continued success prompted Eric Grevstad, then inCider/A+ Review Editor, to observe in 1988 that AppleWorks "has kept the Apple II banner flying proudly in the IBM and Macintosh age." Many AppleWorks users, including NAUG's 6,000-plus members, would say this is still true. But what accounted for AppleWorks' unprecedented success?

### AppleWorks' Growth

Key, of course, was the product itself. AppleWorks was always easy to learn, powerful, fast, and convenient. Apple, Claris Corporation, and Quality

## General Interest...

Computers continued to improve the program. Early on, this meant supporting expanded memory and high-capacity disk drives after InfoWorld reviewer Mark Renne criticized the memory constraints of AppleWorks 1.1. Lisbonne remedied that problem with the release of AppleWorks 1.3 less than two years later.

Second, AppleWorks quickly earned the support of third-party developers who saw ways to improve an already outstanding product. By the time Apple released AppleWorks 1.3, Pinpoint and Jeeves provided a spell checker and desk accessories that AppleWorks lacked.

AppleWorks add-ons began to proliferate. Mega-haus Corporation released ReportWorks, which let you create relational data base reports, and The Software Touch released FontWorks, which let you use attractive typefaces in word processing documents. A year later, Alan Bird's AutoWorks and Randy Brandt's MacroWorks joined the mix of third-party enhancements to AppleWorks.

These early pioneers planted the seed. But AppleWorks owes a large measure of its continued success to the TimeOut series, launched in 1987 by Beagle Bros, which had merged with The Software Touch.

TimeOut QuickSpell, Graph, SideSpread, SuperFonts, UltraMacros, FileMaster, and DeskTools were the first TimeOut modules released by Beagle. Clearly, these products borrowed features from Jeeves and FontWorks, but TimeOut incorporated them seamlessly into AppleWorks 2.0, which was also released in 1987.

By December of 1988, AppleWorks had won inCider/A+'s Best Integrated Package designation and was heralded as the "best-selling Apple II program of all time," a superlative that still applies today.

### Conclusion

Whether you are talking about automobiles, music, or software, true classics are always in style. and AppleWorks is no exception. The product has stood the test of time, even as NAUG members continue to find new ways to be productive and creative with AppleWorks.

### NAUG: A Series of Firsts

The seed for NAUG was planted in 1985 when Dr. Warren Williams, the group's President, started giving AppleWorks "hints and tips" presentations at educational computing conferences. "These meetings were mobbed," recalls Dr. Williams. "People really wanted ideas to help them use AppleWorks."

The need for a national, self-help organization was initially suggested by attendees at the March 1986 Michigan Association of Computer Users in Learning conference in Grand Rapids. A month later, Williams and Cathleen Merritt, who holds Master's Degrees in education and in educational technology, officially announced the National AppleWorks Users Group at the National Educational Computing Consortium conference in San Diego.

Since then, NAUG has garnered many "firsts" including:

|   |      |
|---|------|
| First issue of the <i>AppleWorks Forum</i>                                    | 1986 |
| First national AppleWorks seminar program                                     | 1986 |
| First AppleWorks bulletin board system  | 1987 |
| First AppleWorks public domain library  | 1987 |
| First single-product user group to surpass 10,000 members                     | 1988 |
| First public presentation about AppleWorks by Bob Lissner (at a NAUG seminar) | 1988 |
| First presentation of AppleWorks 3.0  | 1989 |

*[Dr. Cynthia E. Field was an original member of InfoWorld's Review Board. In 1986 she awarded AppleWorks 1.3 a score of 7.9, calling the program "a very good value for small business or home use." She is now the Contributing Editor of the AppleWorks Forum.]*

*[Dr. Warren Williams, the president of NAUG, has published more than 400 articles in the AppleWorks Forum and other computer publications.]*

*[Cathleen Merritt, the Director of NAUG and Editor of the AppleWorks Forum, has written more than 200 articles about AppleWorks since 1986.]*



# AppleWorks: Present and Future

by Randy Brandt

AppleWorks is one of the most important software programs of all time. As a pioneer in the integrated software category, AppleWorks taught innumerable users that a computer is a powerful, easy-to-use tool that could contribute to their personal and professional productivity.

Over the years, more than three million people have used AppleWorks, not counting all the children who used the program in their various school laboratories. And AppleWorks was one of the first truly international programs, available in more than half a dozen languages.

After ten years, you probably wonder about the future of this venerable program.

AppleWorks is doing quite well, thank you. This article will examine the current status of the product and the future prospects for the program that became the basis for a cottage industry.

## AppleWorks' Present

It has been almost a year since AppleWorks 4 burst on the scene; the first new version of AppleWorks in almost half a decade. As I write this article, Quality Computers is shipping version 4.3, a new maintenance release of AppleWorks 4.

### Figure 1: Changes from AW 4.02 to AW 4.3

#### General:

- Improved macros.
- Converts ReportWriter to 4.1. Supports AppleWorks 4.3 and solves problems with formatted numbers.
- Renaming a file now shows the new name, not the original, if a duplicate name error occurs.
- Can print to a slot that is mapped to a hard drive.
- Changing the disk location during file saves now works.
- Printer codes can now accept Control-Y.
- If a printer definition is deleted, the special codes remain in the correct order.

#### Word Processor :

- Justified mail merge categories no longer contain an extra space.
- Apple-O no longer changes the cursor position when page breaks are calculated.
- Text files now save with spaces instead of tab fill characters.

#### Data Base:

- The Ditto Command now triggers importing and exporting.
- Justification no longer damages phone numbers and other odd-format numbers.
- Imports now respect locked categories.
- Defining lookup lists no longer destroys the current category's rules.
- The glossary feature now works properly on Apple II's equipped with peripheral slot memory cards.

#### Spreadsheet:

- Copying a block to the clipboard after earlier moving from the clipboard no longer causes a lock up.

**Figure 2: Preliminary Feature List for AppleWorks 5**

### General:

- Includes an enhanced version of UltraMacros.
- Auto-switches between desktops when you load more than 12 files.
- Apple-A adds a Reverse option to invert the current order of all file lists.
- Can load only TimeOut Utilities at launch. That speeds up the launch and lets you add TimeOut applications later if necessary.
- Supports background printing with a built-in print buffer.
- You can set alarms for any time on any date, or set them to occur daily. Includes a "snooze" feature.

### Word Processor:

- Enhanced split screen capability. Supports re-sizable windows and preserves the split screen when you switch between files.
- Full outlining capability.
- Prints odd or even pages.
- Preserves Apple-F find text when you switch files.
- Allows non-printing comment lines.
- Supports printing to screen which lets you preview mail-merge operations.
- Loads text files with left and right margins set to zero for maximum width lines.

### Data Base:

- Single record layout supports background text. Lets you enter anything on a layout, including the use of inverse or MouseText to draw boxes or highlight areas.
- Single record layout supports a new "mixed mode" which displays a scrolling list of entries in the current category. AppleWorks updates the single record on the screen as you scroll through the list.
- When choosing a category from a list, you may enter the category number instead of scrolling through the list.
- Lets you append records to the end of a file.

### Spreadsheet:

- Lets you attach memos to cells. (Press Apple-" to display and edit a note.)
- Find Command can search for memos or for text in memos.
- Dynamic @ALERT function updates each time you recalculate the file.
- New @TODAY function displays the current date and updates with each recalculation.

As you can see from the many improvements listed in *Figure 1*, AppleWorks 4.0, 4.01, and 4.02 users should upgrade to AppleWorks 4.3. Thanks to Quality Computers, the upgrades are free from NAUG's AppleWorks bulletin board, the Electronic Forum, and from other on-line services. *[Ed: NAUG members can also order the AppleWorks 4.3 Updater for \$4 (5.25-inch disk) or \$6 (3.5-inch disk) plus \$2 s/h per order directly from NAUG. Non-members can order the updater for \$10 from Quality Computers.]*

### AppleWorks' Future

Many people believed that version 3.0 was the final version of AppleWorks, especially since the product remained stagnant for almost five years as Claris focused on the Macintosh market. However, once Quality Computers acquired the rights to the product, it did not take long for AppleWorks 4 to become a reality. But now that version 4.3 is available, is there any hope for future enhancements?

The answer is "Yes"; Quality has decided to produce AppleWorks 5. The new version of Apple-

## General Interest...

Works, which I am writing with Dan Verkade, is scheduled for an October release.

AppleWorks 5 will add dozens of important features to AppleWorks; *Figure 2* presents a partial list of these features. However, we had to make a few compromises to accommodate all these features. Specifically:

1. Quality will only ship the program on 3.5-inch disks. That will make it easier to support the features we are adding to AppleWorks.
2. AppleWorks 5 will require a minimum of 256K of RAM.
3. AppleWorks 5 will not work on unenhanced Apple IIe systems.

AppleWorks 4.3 will be the last version of AppleWorks that will run on unenhanced Apple IIe systems equipped with 5.25-inch disk drives and less than 256K of RAM.

### More about AppleWorks 5

Although AppleWorks 5 will add more than twenty powerful features to AppleWorks, the new version of AppleWorks will share the same data files as used with AppleWorks 4. With only two minor exceptions, your data files will be interchangeable between these versions of AppleWorks. (The two exceptions: AppleWorks 5 spreadsheets that use the new @TODAY function and AppleWorks 5 data bases that use background text will not be readable by AppleWorks 4.) AppleWorks 5 will also include a new version of Randy's Free Patcher that will let you customize the program for your work environment.

Finally, AppleWorks 5.0 will be more stable than the first versions of AppleWorks 4. That is the result of fundamental design changes we made in AppleWorks 4 which lets us add new features to AppleWorks. We worked out the kinks in those areas so we can focus on the new features rather than on redesigning AppleWorks. (For example, every TimeOut application that works with AppleWorks 4 should immediately work with AppleWorks 5. This will get users "up to speed" much quicker than with AppleWorks 4.)

Although Quality has not finalized the price for AppleWorks 5, we know the upgrade from AppleWorks 4 will cost less than the upgrade from AppleWorks 3 to AppleWorks 4.

### Conclusion

You do not have to know the history of AppleWorks to enjoy using the program. But an understanding of its highs and lows over the years can help you appreciate AppleWorks' acceptance and longevity.

AppleWorks will never again be the market leader in computer software. But for the tens of thousands of us who appreciate its functionality and ease-of-use, AppleWorks represents a developing yet timeless product as it moves into its second decade.

*[Randy Brandt has made his living since 1986 by enhancing AppleWorks. He lives in Arvada, Colorado with his wife Joanna, their five children Heather, Erika, Michael, Millie, and Matthew, and their kitten Lavender. For a peaceful, quiet time, he*

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# How to Create Jigsaw Puzzles with AppleWorks

by Cynthia E. Field

---

*This is the fourth in a series of articles that describes projects you can create with AppleWorks and TimeOut SuperFonts. This month you will learn how to make jigsaw puzzles and other documents that contain double-high resolution graphics. The author assumes that you completed the first three projects in this series.*

---

If you think creatively, you can devise an unlimited number of interesting computer projects that use AppleWorks, TimeOut SuperFonts, and unconventional media. The jigsaw puzzle you will create this month is one example of the many enjoyable, educational, and useful items you can create with your Apple II.

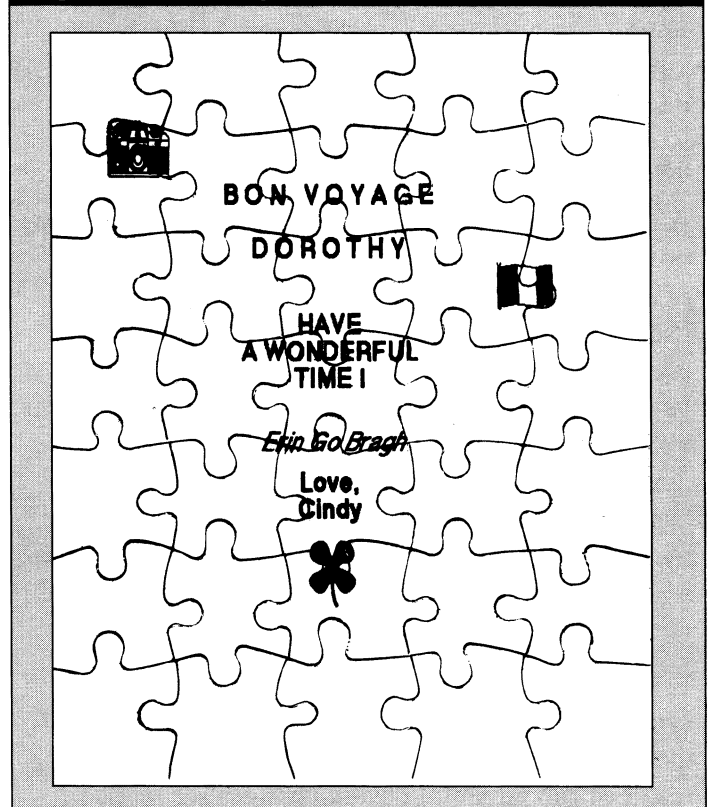
Figure 1 is a sample puzzle I made as a “bon voyage” greeting for a friend planning a summer trip abroad. The project requires AppleWorks, SuperFonts, and Copi-Tak, the applique film you learned to use in last month’s SuperFonts Projects article. In the process, you will learn how to use TimeOut Paint to select and modify clip-art for your documents.

Although making the puzzles may sound complicated, the project is so easy that even school-age children can help.

## Overview

To create the puzzle, you will prepare an AppleWorks/SuperFonts word processor document that will fit on an 8-inch by 10-inch white cardboard jigsaw puzzle blank. Each blank puzzle comes pre-cut into 35 pieces. You can buy the puzzles from art supply stores or by mail. The brand I use is “Create-A-Puzzle” sold by Richman Cotton Company (\$2.90 for 2 puzzles). [Ed: Refer to the Company List at the end of this article for the names and addresses of the sources of these materials.]

**Figure 1: Sample Puzzle**




## What You Need

You need the following supplies and software to complete this project:

- Copi-Tak applique film (or clear 8.5-inch by 11-inch laser label sheets).
- color pencils or felt-tip pens.
- Create-A-Puzzle jigsaw puzzle blanks.

**Figure 2: SuperFonts Setup for Sample Puzzle**

```
File: PUZZLE          REVIEW/ADD/CHANGE          Escape: Main Menu
=====
<1=/CEFE1/APPLEWORKS.3.0/FONTS/HELVETICA.24>
<2=/CEFE1/APPLEWORKS.3.0/FONTS/HELVETICA.10>
<p1=/cefe1/publish.it.4/camera>
<p2=/cefe1/publish.it.4/flags>
<p3=/cefe1/publish.it.4/rabbit>
-----Left Margin: 1.0 inches
-----Right Margin: 1.0 inches
-----Top Margin: 0.5 inches
-----Bottom Margin: 1.0 inches
<p1,029,110,187,180>
-----Centered
      <1><ob>B O N  V O Y A G E
                D O R O T H Y
-----Right Justified
                                <p2,004,070,138,120>
-----Centered
                HAVE
                A WONDERFUL
                TIME !<oe><2>
      <1><ib>Erin Go Bragh<ie><2>
      <1><ob>Love,
      Cindy<oe><2>
      <p3,218,010,328,070>
-----
Type entry or use  commands          Line 30 Column 1          04/21/94 11:44
```

- hobby knife.
- AppleWorks 2.0 or later.
- TimeOut SuperFonts.
- TimeOut Paint (optional; for adding double high-resolution clip-art to your puzzle).
- Publish It! or any other double high-resolution clip-art.

## Choosing Fonts

Your jigsaw template will use two fonts, three graphics, and several formatting options. Follow these steps to choose the fonts:

1. Launch AppleWorks and start a new word processing file from scratch. Name the file "PUZZLE". Save the template frequently as you complete the project.
2. Insert two SuperFonts Load Font commands at the beginning of the document. Use Figure 2 as a guide. Remember that the Load Font commands must precede all the other items in the document.

If you use AppleWorks 2.0, you must type the Load Font commands manually. Remember to include the complete pathname to each font (see Figure 2).

If you use a later version of AppleWorks, press Apple-Escape and choose "PickFonts". This TimeOut application will automatically enter the appropriate command and path in the PUZZLE template.

You will use the Helvetica.24 font to create the text and Helvetica.10 to help control the line spacing.

## Selecting Graphics

If you have TimeOut Paint, you can add double high-resolution graphics to your puzzle.

I used a camera, Irish flag, and shamrock that I found in the collection of graphics that came with Publish It!, the popular Apple II desktop publishing

program. If you do not have Publish It!, browse through your clip-art collection and choose three small (one square inch) pictures for your puzzle. [Ed: You will also find useful clip-art on this month's issue of *NAUG on Disk*, which costs \$10 plus \$2 s/h from NAUG.]

You will use TimeOut Paint to select and modify the graphics. Follow these steps:

1. Press Apple-Escape and choose "Paint" to launch TimeOut Paint.
2. Select "Open" from the File Menu. [Ed: If you do not have a mouse, use the Arrow Keys to move the Arrow Pointer. (Holding down the Apple Key speeds up the pointer.) Then press the Solid Apple Key or Option Key to display the menu.]
3. Navigate to the file that contains the first graphic. (If you are using the Publish It! graphics, navigate to the CAMERA file.) Write down the complete pathname to the file and open the file.

The file you select might contain several pieces of art. Later you will enter special command param-

ters in your AppleWorks PUZZLE template to isolate the portion of the graphic you want to include in your puzzle.

The parameters are the coordinates of the top left and bottom right corners of the portion of the image you want to include in your document. Continue as follows to use TimeOut Paint to determine the coordinates of the graphic:

4. Select "Coordinates" from the Goodies Menu. The Menu Bar will display the x and y coordinates of the current cursor position. The upper left-hand corner of the TimeOut Paint screen is position 0,0.
5. Choose "Marquee" from the Tools Menu. Put the mouse near the top left-hand corner of the camera graphic, click the mouse button, and drag the mouse to the right and downward to create a frame around the camera. Then release the mouse button. *[Ed: If you do not have a mouse, hold down the Option Key as you use the Arrow Keys to draw the marquee frame.]*
6. Put the cursor on the upper left-hand corner of the marquee and write down the coordinates of the top left-hand corner of the camera.
7. Put the cursor in the lower right-hand corner of the marquee and write down the second set of coordinates.
8. Select "Undo" from the Edit Menu to remove the marquee frame.

Now you will repeat this process for the remaining graphics. Continue as follows:

9. Choose "Open" from the File Menu. Select the FLAGS file from the Publish It! clip-art directory. Click on "No" in response to the "Save changes...?" prompt. Note the complete pathname to the FLAGS file.
10. Use the marquee method described in steps #5 through #8 to determine the coordinates for the flag that has three vertical bands. Later you will use color pencils to paint the flag "Irish".
11. Open the RABBIT file in the Publish It! clip-art directory and use the marquee to determine the coordinates of the shamrock graphic. Write

down the pathname to the RABBIT file.

12. Select "Quit" from the File Menu (or press Apple-Q) to return to the PUZZLE template.

### Completing the Template

Now you are ready to add the pictures and enter the text of your puzzle. You will start by entering the Load Picture commands. Follow these steps:

1. Move the cursor to line 3, the line immediately under the two Load Font commands.
2. Type the Load Picture commands in *Figure 2*. Because there is no PickFonts equivalent for pictures, you must type the complete path to each graphic.
3. Use Apple-O to set the left, right, top, and bottom margins in *Figure 2*. These settings ensure that your puzzle will fit on the 8-inch by 10-inch Create-A-Puzzle blank.

Next, you will place the pictures and enter the text of your puzzle. Follow these steps:

1. On line 10 enter

`<p1,029,110,187,180>`

This command tells SuperFonts to use picture #1 as defined earlier (the camera graphic) and specifies its coordinates. The camera graphic will be left-justified when you print the puzzle design. *[Ed: The coordinates you determined earlier for the graphic will only approximate those used by the author. Either set of coordinates should generate the same results in your final output.]*

2. On line 11, use Apple-O to choose "Centered".
3. On line 12, enter the Change Font command "<1>" to select the Helvetica.24 font. Enter the SuperFonts formatting command "<ob>" to designate outline text style. Then type the words "BON VOYAGE" using all upper case text. Press the Return Key twice to move the cursor to line 14.

The first Return moves the cursor to the next line. The second Return creates a 24-point space between the "BON VOYAGE" line and the name of the puzzle recipient.



4. On line 14, type the word "DOROTHY" using all capital letters. Press the Return Key.
5. On line 15, insert the "Right Justified" printer option.
6. On line 16, enter the Put Picture command and the parameters for the Irish flag graphic. Use *Figure 2* as a guide. Press the Return Key.
7. On line 17, change the justification to "Centered".
8. On line 18, type "HAVE" and press the Return Key.
9. On line 19, type "A WONDERFUL" and press the Return Key.
10. On line 20, type "TIME ! <oe><2>" and press the Return Key four times.

The "<oe>" command tells SuperFonts to end the outline type style. The "<2>" tells SuperFonts to switch to the smaller Helvetica.10 font. When you press the Return Key, SuperFonts will create a narrow line space instead of the wide space that occurs when the 24-point font is active. That lets you control line spacing and conserve space on the template.

Now you will complete the template. Continue with these steps:

11. On line 24, type "<1>" to change back to the Helvetica.24 font and enter "<ib>". This is SuperFonts' Begin Italics command. Type the words "Erin Go Bragh" in mixed case text. At the end of the line, enter the "<ie>" End Italics command and "<2>" to switch to the 10-point font. Press the Return Key twice to insert a small line space in line 25.
12. On line 26, type "<1>" to switch back to the larger font, enter the "<ob>" Outline Begin command and type "Love,". Press the Return Key once.
13. On line 27, type "Cindy" (or your name). Insert the "<oe>" End Outline command and "<2>" to switch to the 10-point font. Press the Return Key twice. That will insert a small space after the name.

14. On line 29, type the Put Picture command for the shamrock graphic. Once again, use *Figure 2* as your guide.

### Previewing and Printing

Now you will preview the template. Follow these steps:

1. Press Apple-Escape and launch SuperFonts.
2. Press the Return Key to print from the beginning of the document.
3. Select "The screen" in response to the "Where do you want to print the file?" prompt.
4. Type "H" and press the Return Key twice to specify high quality printing and to preview your puzzle.
5. The puzzle will not fit on the screen. Press the Space Bar twice to view the remaining sections of the puzzle.
6. Press the Space Bar again to return to AppleWorks.
7. When you are satisfied with your puzzle design, print a copy on paper and photocopy it onto Copi-Tak.

### Constructing the Puzzle

You are now ready to color the design, attach it to the puzzle blank, trim the Copi-Tak, and cut the film to separate the puzzle pieces. Follow these steps to prepare the puzzle for gift-giving:

1. Use color pencils or felt-tip pens to color the text and the clip-art in your puzzle. Feel free to experiment with other media. Wax crayons or oil pastels work well if they are properly sharpened. You want to stay within the borders of the outline text and graphics.
2. Peel away the top one-inch of the backing paper from the applique film. Center and press the film along the top edge of the puzzle blank. Carefully smooth the film. Use a facial tissue to smooth the film without smudging the image.
3. Remove another inch or so of the film's backing paper and smooth it over the cardboard. Releas-

## Company List

### Copi-Tak Applique Film

Fidelity Products Co.  
5601 International Parkway  
P.O. Box 155  
Minneapolis, MN 55440-0155  
(800) 326-7555  
Fax: (800) 842-2725

### Clear Laser Label Sheets

PaperDirect  
205 Chubb Ave.  
Lyndhurst, NJ 07071  
(800) A-PAPERS  
Fax: (201) 507-0817

### Create-A-Puzzle

Richman Cotton Company  
2631 Piner Rd.  
Santa Rosa, CA 95401  
(800) 992-8924  
Fax: (707) 575-4439  
CompuServe: 73003,1246

ing only part of the film at a time helps avoid wrinkles and air bubbles.

4. Use an X-ACTO or other hobby knife to cut away excess applique film around the puzzle. Then cut the film along the edge of each puzzle piece by following the boundaries that show through the clear film.
5. Separate the puzzle pieces and place them in the envelope provided in the Create-A-Puzzle package.

Now you are ready to send the unique "greeting card" on its way.

### Customizing the Template

When you finish the "bon voyage" design, you can easily modify the PUZZLE template for other occasions such as birthdays, anniversaries, graduations, or job promotions. Just follow these steps to customize the template:

1. Use Apple-N to change the template to "PUZZLE.BDAY" for a birthday, or use another meaningful name.
2. On lines 3 to 5 change the Load Picture path names so they point to the graphics you want to use in your design.
3. On line 12 replace the "BON VOYAGE" greeting with "HAPPY BIRTHDAY", "CONGRATULATIONS", or something appropriate.
4. On line 14 change the recipient's name.
5. On line 20 change the word "TIME" to "DAY". For some occasions, you may also want to change the text on lines 18 and 19.

6. On line 24, change the text to something snappy such as "You're the Best", "Way to Go!", or "Over the Hill".
7. Save the new design before printing the page and constructing your puzzle.

### Conclusion

The custom jigsaw puzzles you make with AppleWorks and TimeOut SuperFonts cost less than many commercial greeting cards and deliver your personalized messages in a unique way. But as much fun as these puzzles are to receive, they are even more fun to make.

*[Dr. Cynthia E. Field has been doing things that can't be done on Apple II computers since 1982. She was the author of inCider/A+'s popular "Press Room" column and is the Contributing Editor of the AppleWorks Forum.]*

*[Ed: Working copies of the PUZZLE template and some appropriate graphics appears on this month's issue of NAUG on Disk, which costs \$10 from NAUG. The template requires AppleWorks 2.0 or later enhanced with TimeOut SuperFonts. NAUG on Disk requires a 3.5-inch disk drive.]*



Remember to notify **NAUG** if you change your address. Do not rely on the post office to forward your mail; you may miss some issues. Send address changes to **NAUG**; Box 87453; Canton, MI 48187.

# How to Change the Order of Data Base Reports

by Keith Johnson

Early versions of AppleWorks used data base report layouts for a single purpose – to define the output that would print from a data base file. AppleWorks 3 expanded the role of report layouts by letting you use your layouts to store multiple record and single record screen formats.

AppleWorks 4 extends the role of report layouts even further – by letting you use table format report layouts to store record selection information. Specifically, with AppleWorks 4 you can define selection rules in a tables format report and save your selection rules with the file. To use those rules in Review/Add/Change mode, you press <oa-R> and choose “3. Get rules from a report”. Once you start using this feature you will find yourself creating report layouts that you never use to actually print anything!

AppleWorks 4 also lets you use report formats to store the parameters you use to arrange (sort) a data base. Just set up a tables format report, press <oa-A>, and choose the sort criteria you desire. To arrange the data base by these rules later, press <oa-P>, choose the report, press <oa-P> as though you were going to print the report, and press the Escape Key three times to return to your file. AppleWorks will rearrange the file according to the rules in the report.

But the versatility of AppleWorks’ data base report layouts accentuates a weakness in AppleWorks. Specifically, AppleWorks always lists your report formats in the order you defined them, even if you would prefer your formats listed in a different order. For example, you might want all the record selection reports together, all the auto-arrange reports together, and the “real” reports in a third group. If you have a long list of report layouts, it is

almost certain you would prefer to have a different order in the list. But AppleWorks does not let you re-order the existing layouts.

The macro in *Figure 1* lets you re-sequences the report list by moving any report name up one place in the list. You can revise the macro to allow more freedom of movement, but instead of writing a more complex macro, I suggest that you re-run the macro to put your reports in any order you want. You probably will not use the macro often, so I decided to sacrifice some versatility to avoid additional complexity.

You need AppleWorks 4 enhanced with Ultra-Macros 4.3 to create and use these macros.

## How to Use the Macro

Follow these steps to use the macro:

1. Type the macro into your macro file. Change the six pathnames in the macro to pathnames that are appropriate for your system. [Ed: See the section entitled “Setting Up for Your System” below for more information about these pathnames.] Note the important space character in the .peekvar and .pokevar commands.
2. Compile the file and save it as your default macro set. [Ed: Step-by-step directions for adding the macro to your default macro set appeared in the sidebar “How to Add a Macro” in the April 1994 issue of the *AppleWorks Forum*.]
3. Check the format of all the labels format reports in your data base. Each label format report must have a category in the upper left corner of the screen. [Ed: For the reasoning behind this

**Figure 1: Macro that Moves a Report Up in the Menu**

```
<ba-R>:<adb><      { Define the main macro.      }
$1=screen 41,1,3:    { Read the title at the top of the screen.  }
ifnot $1="CAT" bell:  { If it is not "CAT", ring the bell...  }
  msg "You must be at REPORT CATALOG": { ...display this error message...  }
  stop:endif:        { ...and stop the macro.      }
rtn:                 { Display the chosen report format.  }
t=peek $921b:        { Get the number of the current report.  }
if t=1 bell:         { If this is the first report...  }
  msg "You can't move the top category": {...display this error message...  }
  k=key:              { ...wait for the user to press a key...  }
  msg "":             { ...erase the message...  }
  stop:endif:        { ...and stop the macro.      }
$9="A":ba-1:         { Otherwise, launch the sub-routine that saves this report as set "A".  }
esc:                 { Return to the Report Menu screen.  }
rtn:                 { Go to the Report Catalog again.  }
u=t-2:               { Define variable u, used to move down the list.  }
if u>0 (down) u:endif: { Move down to the report below report A  }
rtn:                 { Choose that report.  }
$9="B":ba-1:         { Save the new report as set B.  }
$9="A":ba-2:         { Replace the report with set A.  }
esc:rtn:             { Go back to the Report Menu.  }
u=t-1:               { Define temporary variable u.  }
(down) u:rtn:        { Choose the original report (Report A).  }
$9="B":ba-2:         { Replace with report set B.  }
esc>!               { Go back to the Report Menu.  }

<ba-1>:<asr><      { Define the subroutine that saves the report set.  }
y=0:                 { Define the variable that counts the loop.  }
x=$7500:             { Define the beginning memory address.  }
begin:               { Begin a loop that saves 280 bytes.  }
  .peekvar x,a(y) ,14,2: { Capture the next two bytes from the report section of memory.  }
  y=y+1:x=x+28:        { Increment the variables.  }
  if y=10 then exit:endif: { Exit the loop if you captured all 280 bytes...  }
rpt:                 { ...otherwise, repeat the loop.  }
$1="/RAM4/DBR1."+$9:  { Name the variable set DBR1.A or DBR1.B and set the path to /RAM4...  }
.savevar $1:         { ...and save the data.  }
y=0:                 { Define the loop counter for the second pass.  }
begin:               { Begin the loop that saves the next 280 bytes.  }
  .peekvar x,a(y) ,14,2: { Capture the next two bytes from the report section of memory.  }
  y=y+1:x=x+28:        { Increment the counter and memory address.  }
  if y=10 then exit:endif: { Exit the loop if you captured all 280 bytes...  }
rpt:                 { ...otherwise, repeat the loop.  }
$1="/RAM4/DBR2."+$9:  { Define the variable set as DBR2.A or DBR2.B...  }
.savevar $1:         { ...and save the data.  }
ba-7>!              { Launch the subroutine that saves the selection rules.  }

<ba-2>:<asr><      { Define the subroutine that retrieves a report set.  }
$1="/RAM4/DBR1."+$9:  { Define the first file name.  }
.loadvar $1,50:       { Retrieve the variable set.  }
y=0:x=$7500:          { Define the loop variables.  }
begin:               { Begin the loop that restores the first 280 bytes.  }
  .pokevar x,a(y) ,14,2: { Poke the variables in the same order as they were stored.  }
  y=y+1:x=x+28:        { Increment the counter and memory address.  }
```

**Figure 1: Macro that Moves a Report Up in the Menu (Continued)**

```

if y=10 then exit:endif: { Exit the loop if you restored all 280 bytes... }
rpt: { ...otherwise, repeat the loop. }
$1="/RAM4/DBR2."+$9: { Define the second file name. }
.loadvar $1,50: { Retrieve the second variable set. }
y=0:x=$7618: { Define the loop variables. }
begin: { Begin the loop that restores the second 280 bytes. }
.pokevar x,a(y) ,14,2: { Poke the variables in the same order as they were stored. }
y=y+1:x=x+28: { Increment the counter and memory address. }
if y=10 then exit:endif: { Exit the loop if you restored all 280 bytes... }
rpt: { ...otherwise, repeat the loop. }
ba-3: { Launch the subroutine that makes the changes permanent. }
ba-8>! { Launch the subroutine that restores the selection rules. }

<ba-3>:<asr>< { Define the subroutine that tells AppleWorks the layout was changed. }
oa-0:esc: { Go to the Printer Options and return to the layout. }
oa-right:oa-left>! { Move right, then left. }

<ba-7>:<asr>< { Define the subroutine that saves the selection rules. }
y=0:x=$9363: { Define the loop variables. }
begin: { Begin the loop that saves 114 bytes from the selection rules area of memory. }
.peekvar x,a(y) ,19,2: { Define the variables you will capture. }
y=y+1:x=x+38: { Increment the counters. }
if y=3 then exit:endif: { Exit the loop if you captured all 114 bytes... }
rpt: { ...otherwise, repeat the loop. }
$1="/RAM4/DBR3."+$9: { Define a filename for the file that stores the selection rules. }
.savevar $1>! { Save the rules as DBR3.A or DBR3.B. }

<ba-8>:<asr>< { Define the subroutine that retrieves the selection rules. }
$1="/RAM4/DBR3."+$9: { Define the file name. }
.loadvar $1,50: { Load the variable set. }
y=0:x=$9363: { Define the loop variables. }
begin: { Begin the loop that restores the 114 bytes. }
.pokevar x,a(y) ,19,2: { Poke the variables in the same order they were stored. }
y=y+1:x=x+38: { Increment the counter and memory address. }
if y=3 then exit:endif: { If you restored all 114 bytes, exit the macro... }
rpt>! { ...otherwise, repeat the loop. }

```

requirement, see the the section entitled "How It Works and How to Revise It" on the next page.]

4. Press <oa-P> and then the Return Key to display the Report Menu. Highlight the layout you want to move up the list and press <ba-R>. AppleWorks will flash through various screens and will leave you at the Report Menu. Press the Return Key to see the list in its changed order. Repeat this step as needed.

## Setting Up for Your System

The macros save six sets of UltraMacros variables for later retrieval. As presented in Figure 1, the

macro saves these variables on a RAM disk (/RAM4), which is the best place to save the data. RAM disks are fast and these temporary files will handily disappear when you turn off your computer. The second best place to store the files is somewhere on your hard disk, which presumably is always on-line. If you must save to a floppy disk, you should change the six pathnames to file names; UltraMacros will then save the variables on whatever disk happens to be current. Each file is only 1K, so they won't fill up your disk. If these temporary files bother you, you can expand the macro to delete the files at the end of the operation.

## The .peekvar and .pokevar Commands

The .peekvar command reads values from Apple II memory and saves them as UltraMacros variables. Here is an example:

```
.peekvar $7500,c(1),8,2
```

This command says “starting at location \$7500, store data from memory in UltraMacros variables, two bytes per variable, starting at variable c(1), and continuing for 8 variables.”

The order of storage is unusual to those of us used to numerical arrays: it is c(1), d(1), ..., j(1) in this example. The last parameter can be “1” or “2”; it governs whether each variable stores a byte or a word (a “word” is a two-byte value). By using a variable in the parentheses and putting the command in a loop, you can quickly store a lot of information without taking up much macro space. You can then save the information to disk with the .savevar command.

.pokevar is similar to .peekvar, except it pokes the current values of the variables into memory. For descriptions of these commands, see the file “Dot Stuff” in the /EXTRAS/ULTRAMACROS directory on one of your AppleWorks 4 disks. If you do any macro programming, you will find many useful descriptive files on this disk.

As indicated earlier, each of your labels format reports must have a category in the upper left corner. The macro performs an <oa-right : oa-left> command to trick AppleWorks into thinking that you changed the layout. If there is no category there, no change will be made, and AppleWorks will not save the changes.

### How It Works and How to Revise It

The macro uses the .peekvar command to save the current report information in a set of three variables files (called a “report set” in the remarks). [Ed: See the sidebar on this page for more information about UltraMacro’s new .peekvar and .pokevar commands.] It then selects the previous report, saves that information in a second set of three files, recalls the first set, and stores it in this location. Then it returns to the original place in the

list and stores the second set of data in its place. There is too much information to store in a single set of variables, so the macro must store more than one set of variables for each report.

Note that all the work is done on the currently selected report. When you select a report from the list, AppleWorks copies the information that makes up that report into a special area of memory (starting at address \$7500) reserved for the current report. If you make any changes in the report by using the usual methods (pressing <oa-N>, <oa-O>, and so on), AppleWorks will save those changes when you Escape out of this area.

But at this point, AppleWorks is not aware that any change has taken place because the changes made by the macro sidestepped the usual ways you change a report. You must make a temporary “normal” change so AppleWorks saves the changes.

The first change is to go to the Printer Options screen, then Escape back out. That is enough to convince AppleWorks you made a change, although you did not. I also found it necessary to perform a <oa-right : oa-left> combination to retain the name of the report.

Many reports contain selection rule information. In some cases AppleWorks copies those rules to the selection rule section of memory used when you are in Review/Add/Change mode. The <ba-7> and <ba-8> subroutines save and restore that area of memory.

You will need to revise the macro if you have labels format reports that do not have a category in the upper left corner. One approach is to have it read the character under the cursor. If it is a space, move the cursor down (and/or right) until it finds the first character of a category name. Then it can perform the <oa-right : oa-left>. Obviously there are several complications you must deal with here; I wish you luck!

It is also possible to have the macro swap any two reports instead of adjacent ones. But I leave such complex revisions to more ambitious macro programmers.

[Keith Johnson is Associate Director of the Fleischmann Planetarium at the University of Nevada.]

# New Disks in the NAUG Library

## Personal Financial Forecaster Disk

NAUG members planning for their future should examine NAUG's new Personal Financial Forecaster, which is an elegant, comprehensive pre- and post-retirement financial calculator. This sophisticated template displays your anticipated after-tax income based on your savings, pensions, Social Security, inflation, taxes, and more than two dozen other variables that affect your post-retirement income. This is an indispensable aid for personal financial planning.

Our thanks to Jim Harper for developing this exceptional template for NAUG.

NAUG's Personal Financial Forecaster Disk requires AppleWorks 3.0 or later and at least a 60K AppleWorks desktop.

## New Barrows Utilities Disks

The NAUG Public Domain Library now includes two disks filled with new and improved versions of Roy Barrows' valuable enhancements to AppleWorks. Each disk contains TimeOut and task file versions of the utilities, word processor files with annotated copies of the macros, and documentation in AppleWorks word processor files on the disk. These utilities add important functionality to AppleWorks.

**Barrows' Utilities – Disk 14:** This disk requires AppleWorks 3.0 enhanced with TimeOut. You need UltraMacros 3.1 if you want to modify the utilities on the disk. Barrows' Utilities – Disk 14 includes the following utilities:

**Block.Copier:** Powerful block cut and paste routines for the AppleWorks word processor.

**Clip.Help:** Captures text from "HelpScreens" so they can be used as glossaries.

**Clip.Screen:** A "Screen.Shot" tool that lets you capture any section of any screen in AppleWorks.

**Change.Bell:** A menu driven utility that changes the pitch and duration of the AppleWorks error bell.

**Data.Tools:** A menu driven set of useful database utilities.

**Jump.Tools:** Tools that set, find, and remove AppleWorks markers.

**Spread.Tools:** A set of easy-to-use spreadsheet utilities that let you set cell widths with a single keypress, display settings information, and add other functions to AppleWorks.

**SuperCopy:** Copies blocks of cells including cell widths and formats to other cells in the spreadsheet or to a different spreadsheet.

**Barrows' Utilities – Disk 15:** This disk requires AppleWorks 4.x or AppleWorks 3.0 enhanced with TimeOut. Owners of UltraMacros 4.2 or UltraMacros 4.3 can modify the utilities on this disk. The disk contains the following utilities:

**Clip.Help:** Captures text from "HelpScreens" so they can be used as glossaries.

**GlossaryASP:** Adds an instant pop-up glossary to the spreadsheet module.

**Hard.Copy:** Adds an enhanced Printer Options Menu to the word processor module.

**Line.Sort:** Sorts up to 97 word processor lines by any selected column.

**Mr.Calc:** An easy-to-use, on-screen calculator with arithmetic and scientific functions.

**Quick.Cal:** An instant on-screen calendar.

**SuperCopy:** Copies blocks of cells (including cell widths and formats) to other cells in the spreadsheet or to a different spreadsheet.

## How to Order

Unless otherwise noted, all disks are available in 5.25-inch (\$4) or 3.5-inch (\$6) format, plus \$2 s/h *per order*. International shipping additional. Order from: Public Domain Library, NAUG, Box 87453, Canton, Michigan 48187; (313) 454-1115; Fax: (313) 454-1965. NAUG accepts Visa and MasterCard.



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The refinements of dot chomping lead to high scores as hungry Pac-Man avoids ambush by voracious goblins. When Pac-Man gulps an energy dot he can turn the tables and eat everything in sight. . . that includes yummy bonus nuggets, sending scores into the thousands. But goblins won't allow themselves to be gobbled for long; and soon become their old selves, fast and sneaky, to try to put an end to Pac-Man's three lives.



## STARGATE

The entire universe is your enemy as you struggle to rescue humanoids stranded on the planet surface. To take them into a Warp you must reach the Stargate. But getting there isn't easy. Yllecian space guppies, Dynamos, Space huns, Phreds, Big reds, Munchies, landers, Baiters, Pods and Swarmers block the way spewing death and destruction. Will your cloaking device protect you from the threat within. . . Mutant humanoids?



## ROBOTRON: 2084

It's the year 2084, and robots are turning against their masters. Saved by a genetic accident, only you can resist their mutant re-programming and defend humanity. Grunts close in. The Brains launch missiles. Tanks, Sheroids and Electrodes spell death. And then there's the Hulk—immune to your laser. Your mission is to rescue, evade and destroy. Good Luck.



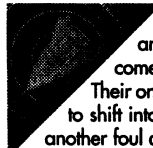
## JUNGLE HUNT

Savage cannibals have kidnapped your traveling companion, and you must rescue her before they turn her into stew! In the deep jungle forest, you jump from rope to rope. Then you brave a crocodile-infested river and a landslide of huge boulders. You reach the cannibal's campsite just in time—your sweetie hangs suspended over a hot cauldron of boiling goo!



## DEFENDER

Landers, Bombers, Baiters, Pods, and Swarmers. The alien attack has come, and defeat at the hands of crazed invaders threatens the humanoids. Their only hope is the spaceship, Defender. Armed with smart bombs and able to shift into hyperspace, Defender evens the score only to become the object of another foul attack: kidnapped humanoids transformed into killer mutants.



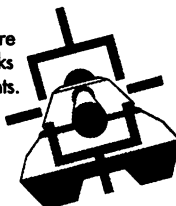
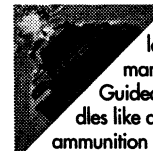
## MOON PATROL

Applications being accepted for replacement gunners in high-risk job. Hostile environment. Road conditions nonexistent due to meteor and crater hazards. Small native population of killer plants also reported. Quick reflexes, marksmanship and driving skill a must. Bonuses for UFO's and enemy tanks. Recognition for valor. Volunteers only.



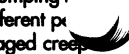
## BATTLEZONE

You have full directional control through an entire landscape filled with hazards and targets. Tanks maneuver around pyramids to get you in their sights. Guided missiles hurtle toward you. But your vehicle handles like a dream on 0-gravity glide, and you've got plenty of ammunition for saucer hunting. What could go wrong?



## CENTIPEDE

An insidious invasion of multiplying insects (centipedes, jumping spiders, poisonous scorpions, and frenzied fleas) pose different perils to the mushroom patch. You must repeatedly blast enraged creepers and stubborn obstacles or lose your enchanted fungus. Remember to listen for distinctive sounds of the attacking bugs; and watch out for blasted centipede segments, each one grows a new head.





## GREMLINS

Applications being accepted for replacement gunners in high-risk job. Hostile environment. Road conditions nonexistent due to meteor and crater hazards. Small native population of killer also reported. Quick reflexes, marksmanship and diving a must. Bonuses for UFO's and enemy tanks. Recognition for valor. Volunteers only.



## DIG DUG



Dodging and blasting Pookas, and dropping rocks on fire-breathing Fygars; Dig Dug burrows his way through a maze of subterranean paths. Ripe fruits and veggies, loaded with points are his passion. But the evil denizens of the underground pack a potentially lethal wallop, and can hide behind fruits. Even when Dig Dug kills them they may come back as Ghosts.

## DONKEY KONG

You can feel an excitement tingle up and down your spine when you play Donkey Kong at home, just like at an arcade. Your joystick guides Mario, the fearless carpenter, up the girders and elevators as he attempts to rescue his sweetheart from the clutches of Donkey Kong. All the thrills of the arcade game.



## GALAXIAN

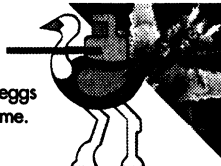
You feel that spine-tingling exhilaration every time you play GALAXIAN in an arcade. Now the same sensation is yours at home.

Wave after wave of Drones, Emissaries, Hornets and Commanders come winging in from deep space. Skillfully you slide your ship right and left with your joystick, dodging their fire and blasting them out of the universe.



## JOUST

In days of olde, when knights were bolde—they never saw anything like this! You don your helmet, hoist your lance and mount your ostrich to do battle with the evil Buzzard Riders in deep space! Pterodactyls to the right of you, alien eggs to the left—learn to fly so you won't die so very far from home.



## MS. PAC-MAN

It was the love match of the century, PAC-MAN, star of the arcade, and his leading lady the unforgettable MS. PAC-MAN. Now their romance continues. You guide MS. PAC-MAN through four different mazes as she gobbles up dots, energy pills, fruit and pretzels. But watch out! The ghosts aren't far behind her. Can she escape them?



## TRACK & FIELD

You've worked long and hard to make it this far. Now it's time for head-to-head competition in the 100 meter dash, long jump, javelin, 110 meter hurdles, hammer throw or high jump. You're out to beat the best times and distances on record. Included is a special arcade controller which gives you everything you need to break the world record in athletic competition.

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CONTROLLER



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**MEMORY**

**1 MB. Ile \$99<sup>95</sup>**  
**4 MB. IIGS \$199<sup>95</sup>**



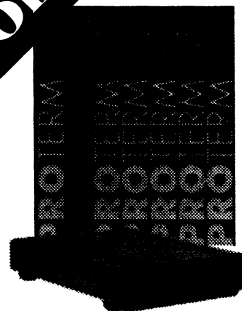
**256K \$24<sup>95</sup>**  
**1 MB. \$59<sup>95</sup>**



**MODEMS**

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SOFTWARE, CABLE**  
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**\$139<sup>95</sup>**



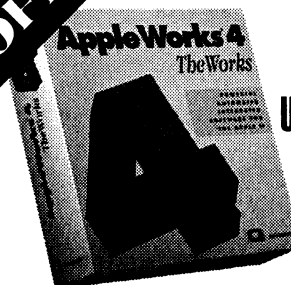
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# A Spreadsheet that Predicts School Enrollments

by Stan Hecker

**Y**ou cannot overstate the diversity of the uses for AppleWorks. NAUG members use AppleWorks for everyday tasks such as writing letters and maintaining lists and for esoteric uses such as farm management and statistical analyses. This month's template demonstrates one of the sophisticated applications – how to use AppleWorks for population projections. This particular template predicts school enrollments, but you can use these procedures to predict housing needs, population growth for your city, or the need for more services and stores in your community. And even if you never use this template, it's nice to know how they do student projections at the School Board office.

I will assume that you know how to create an AppleWorks spreadsheet. The template works with any version of AppleWorks.

## **Projecting School Enrollments**

Knowing the number of pupils in a school system plays an important role in school planning. A district's future enrollment determines the number of schools and teachers it needs and the funds it will receive from state and other funding agencies.

Having a reasonably accurate estimate of future school populations is important to school administrators, board members, teachers, parents, and taxpayers.

A simple statistical concept makes such estimates easy to understand: the number of third grade students last year is a starting point for projecting the number of fourth grade students this year. The statistical term for this concept is "cohort survival", the percentage of students who remain in the population the following year. It accommodates historical factors such as inward and outward migration

that can affect school enrollment figures in your community.

Statistically, a certain percentage of the children born today can be expected to enroll in kindergarten in five years. A smaller percentage of the children in cribs and strollers today will graduate from high school in 2010.

Although the idea is straightforward, predicting grade-by-grade enrollments is not. Without AppleWorks, the process involves an avalanche of long division problems. But AppleWorks' spreadsheet is well-suited to the task of estimating school populations.

## **Limitations**

Despite its apparent sophistication and relative ease of use, this month's template does not incorporate many of the refinements upon which statisticians rely. For instance, the worksheet does not identify trends or accommodate factors such as the opening of new industries or the closing of a private school in the community. Nor does it determine the statistical reliability of any estimate it generates.

## **Overview**

The template in *Figure 1* contains three sections. Section A (cells A1 through H11) contains instructions and a place for you to enter the starting year for the calculations.

Section B (cells A13 through AE21) accommodates the birthrates and grade-by-grade pupil counts for the five school years prior to the current year. (When you enter "1994" in cell D4 and recalculate, the template will adjust to accommodate school enrollment data for 1989 through 1993 and

**Figure 1: School Enrollment Projection Template**

File: COHORT.TEMP

REVIEW/ADD/CHANGE

Escape: Main Menu

1 SCHOOL POPULATION ESTIMATES--"Cohort Survival" (C-S) Methods

2

3 The upcoming school year

4 begins September -----> 1994<---Enter year and press Apple-K.

5

6 Enter local "live births" in column B for the indicated years.

7

8 Enter the number of pupils in each grade level for each year... 1989

9 through 1995...in rows 17 through 21. Next change "survival rates"

10 as desired in rows 28 and 31. Then press Apple-K to calculate

11 the projected grade level pupil counts which begin in row 39.

12

Section A:  
Instructions and  
starting year

Section B:  
Birthrates and prior  
student counts

13 \*KINDER\* SCHOOL

14 BIRTH # OF YEAR

15 YEAR BIRTHS BEGAN (C-S) KIN (C-S) 1st (C-S) 2nd (C-S) 3rd (C-S) 4th (C-S) 5th (C-S) 6th (C-S) 7th (C-S) 8th (C-S) 9th (C-S) 10th (C-S) 11th (C-S) 12th Full District

16

17 1984 0 1989 0.000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

18 1985 0 1990 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0

19 1986 0 1991 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0

20 1987 0 1992 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0

21 1988 0 1993 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0

22

23 Birth rate change: Expected C-S Rates:

24 L=NONE ERRORLOW: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

25 M=Slow ERRORMiddle: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

26 H=Fast ERRORHigh: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

27

28 Set all estimates to L, M, or H by entering that letter here--> M

29 Then change single cohort survival factors on line 31 if desired.

30

31 Change? M M M M M M M M M M M M M M M M

32

33 Confident projections follow: Kindergarten cohorts alive.

34

35 \*KINDER\* SCHOOL

36 BIRTH YEAR TO

37 YEAR BIRTHS START (C-S) KIN (C-S) 1st (C-S) 2nd (C-S) 3rd (C-S) 4th (C-S) 5th (C-S) 6th (C-S) 7th (C-S) 8th (C-S) 9th (C-S) 10th (C-S) 11th (C-S) 12th Full District

38

39 1989 0 1994 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0

40 1990 0 1995 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0

41 1991 0 1996 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0

42 1992 0 1997 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0

43 1993 0 1998 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0

44

45 Speculative projections follow: Births of kindergarteners estimated.

46

47 1994 ERROR 1999 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0

48 1995 ERROR 2000 0.000 ERROR 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 ERROR

49 1996 ERROR 2001 0.000 ERROR 0.000 ERROR 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 ERROR

50 1997 ERROR 2002 0.000 ERROR 0.000 ERROR 0.000 ERROR 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 ERROR

51 1998 ERROR 2003 0.000 ERROR 0.000 ERROR 0.000 ERROR 0.000 ERROR 0.000 0 0.000 0 0.000 0 0.000 0 0.000 ERROR

52

53

54

**Figure 2: Sample Report from the Template**

| SCHOOL YEAR BEGAN    | KIN   | 1st   | 2nd   | 3rd   | 4th   | 5th   | 6th   | 7th   | 8th   | 9th   | 10th  | 11th | 12th | Full District |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|---------------|
| 1989                 | 1,003 | 1,002 | 1,000 | 1,001 | 992   | 990   | 995   | 993   | 990   | 985   | 982   | 958  | 943  | 12,834        |
| 1990                 | 1,006 | 1,006 | 1,001 | 1,000 | 998   | 992   | 995   | 993   | 993   | 990   | 985   | 963  | 950  | 12,872        |
| 1991                 | 1,008 | 1,014 | 1,010 | 1,011 | 1,009 | 1,001 | 1,005 | 1,000 | 992   | 996   | 984   | 962  | 950  | 12,942        |
| 1992                 | 1,010 | 1,008 | 1,004 | 1,010 | 1,007 | 998   | 998   | 1,003 | 998   | 990   | 980   | 961  | 951  | 12,918        |
| 1993                 | 1,013 | 1,010 | 1,007 | 1,006 | 1,006 | 995   | 988   | 996   | 999   | 989   | 977   | 955  | 946  | 12,887        |
| SCHOOL YEAR TO START | KIN   | 1st   | 2nd   | 3rd   | 4th   | 5th   | 6th   | 7th   | 8th   | 9th   | 10th  | 11th | 12th | Full District |
| 1994                 | 1,030 | 1,016 | 1,008 | 1,010 | 1,006 | 1,001 | 996   | 988   | 994   | 997   | 980   | 955  | 943  | 12,924        |
| 1995                 | 1,044 | 1,033 | 1,014 | 1,011 | 1,010 | 1,001 | 1,002 | 996   | 986   | 992   | 988   | 958  | 943  | 12,978        |
| 1996                 | 1,053 | 1,047 | 1,031 | 1,017 | 1,011 | 1,005 | 1,002 | 1,002 | 994   | 984   | 983   | 965  | 946  | 13,040        |
| 1997                 | 1,059 | 1,056 | 1,045 | 1,034 | 1,017 | 1,006 | 1,006 | 1,002 | 1,000 | 992   | 975   | 960  | 953  | 13,105        |
| 1998                 | 1,068 | 1,062 | 1,054 | 1,048 | 1,034 | 1,012 | 1,007 | 1,006 | 1,000 | 998   | 983   | 953  | 948  | 13,173        |
| 1999                 | 1,075 | 1,071 | 1,060 | 1,057 | 1,047 | 1,029 | 1,013 | 1,007 | 1,004 | 998   | 989   | 960  | 941  | 13,251        |
| 2000                 | 1,087 | 1,078 | 1,069 | 1,063 | 1,056 | 1,042 | 1,030 | 1,013 | 1,005 | 1,002 | 989   | 966  | 948  | 13,348        |
| 2001                 | 1,098 | 1,090 | 1,076 | 1,072 | 1,062 | 1,051 | 1,043 | 1,030 | 1,011 | 1,003 | 993   | 966  | 954  | 13,449        |
| 2002                 | 1,110 | 1,101 | 1,088 | 1,079 | 1,071 | 1,057 | 1,052 | 1,043 | 1,028 | 1,009 | 994   | 970  | 954  | 13,556        |
| 2003                 | 1,122 | 1,113 | 1,099 | 1,091 | 1,078 | 1,066 | 1,058 | 1,052 | 1,041 | 1,026 | 1,000 | 971  | 958  | 13,675        |

al birth data I entered into the template.

The third section shows projected birth data and school enrollment for the years 1999 through 2003. These numbers are based on estimates of future births and not on hard numbers.

Understanding the report is easy. Take the class of 2002 as an example. These children entered kindergarten in the fall of 1989 with 1,003 pupils. School records show that a net of three additional pupils joined the

birth data from 1984 through 1988.) Typically, these birth and school enrollment numbers come from county or parish records and from the school district's official autumn count of pupils.

Section C of the worksheet (cells A23 through AE51) is the area where AppleWorks displays grade-by-grade enrollment projections for the next ten years. You enter birth data for the previous five years (1989 through 1993 for the 1994 school year) in this part of the spreadsheet. Section C then calculates the estimated school population.

## A Sample Report

Figure 2 is a sample report created from the template. Imagine a school district with nearly 13,000 students and approximately 1,000 pupils at each grade level. The top section of the report shows the history of the school district from 1989 through 1993. I entered these numbers in Section B.

The middle section displays "confident estimates" for the years 1994 through 1998. These numbers are "confident" because they are based on the actu-

class in first grade, bringing the enrollment to 1,006.

As you read the table diagonally, you will see that the class numbered 1,010 in second and third grades and dropped to 1,006 in the fourth grade (1993). This is the most recent year for which enrollment figures were available.

The rest of the report is predictive. Based on the cohort survival of earlier classes from grade to grade, the number of students in the class of 2002 will decrease to 1,001 in the fifth grade and should remain relatively unchanged in the sixth and seventh grades. Attrition will begin in 1997 when the class population drops to 1,000 in the eighth grade, 998 in the ninth grade, 989 in tenth grade, and 966 in the eleventh grade. At graduation, the template predicts that class of 2002 will number only 954 students.

## Creating the Template

You will begin developing the template by changing some AppleWorks default settings. Follow these steps:

**Figure 3: Labels and Values**

| Cell(s)         | Entry  | Cell(s)   | Entry  |
|-----------------|--|---|--|
| A1 through H1   | *****SCHOOL POPULATION ESTIMATES---"Cohort Survival" (C-S) Methods [Ed: ***** designates five blank spaces.] | Y15   | 10th   |
| A3 through C3   | The upcoming school year   | AA15  | 11th   |
| A4 through C4   | ^^begins September -----> [Ed: ^^ designates two blank spaces.]  | AC15  | 12th   |
| D4              | 1994 [Ed: Enter as a value.]   | AE15  | District   |
| E4 through H4   | <---Enter year and press Apple-K.  | B17, E17, G17, I17, K17, M17, O17, Q17, S17, U17, W17, Y17, AA17, AC17, B18 | Ø [Ed: Enter zero as a value. To reduce the amount of typing, you can copy row 17 "Within worksheet" to row 18.] |
| A6 through G6   | Enter local "live births" in column B for the indicated years.   | E18, G18, I18, K18, M18, O18, Q18, S18, U18, W18, Y18, AA18, and AC18       |  |
| A8 through G8   | Enter the number of pupils in each grade level for each year...  | A23 through B23   |  |
| A9              | through  | C23 through E23   |  |
| C9 through H9   | ...in rows 17 through 21. Next change "survival rates"   | A24   |  |
| A10 through H10 | as desired in rows 28 and 31. Then press Apple-K to calculate  | C24   | L=None   |
| A11 through G11 | the projected grade level pupil counts, beginning in row 39.   | A25   | Low:   |
| A13             | "KINDER"   | A26   | M=Slow   |
| C13             | SCHOOL   | C25   | Middle:  |
| A14             | BIRTH  | A26   | H=Fast   |
| B14             | # OF   | C26   | High:  |
| C14             | YEAR   | A28 through G28   | Set all estimates to L, M, or H by entering that letter here-->  |
| AE14            | Full   | H28   | M  |
| A15             | YEAR   | A29 through H29   | then change single cohort survival factors on line 31 if desired.  |
| B15             | BIRTHS   | A31   | Change?  |
| C15             | BEGAN  | A33 through G33   | Confident projections follow: Kindergarten cohorts alive.  |
| D15             | (C-S)  | C35   | SCHOOL   |
| E15             | KIN  | C36   | YEAR TO  |
| G15             | 1st  | AE36  | Full   |
| I15             | 2nd  | B37   | BIRTHS   |
| K15             | 3rd  | C37   | START  |
| M15             | 4th  | B39 through B43   | Ø [Ed: Enter zero as a value.]   |
| O15             | 5th  |   |  |
| Q15             | 6th  |   |  |
| S15             | 7th  |   |  |
| U15             | 8th  |   |  |
| W15             | 9th  |   |  |

1. Launch AppleWorks and create a new spreadsheet called "COHORT.TEMPL". Save the template frequently as you work.
2. Use Apple-V to set "Value format" to "Commas" with zero decimal places, recalculation "Order" to "Rows", and "Frequency" to "Manual".

If you are using AppleWorks 4, press Apple-V again to display the "Current Settings" box to confirm your changes.

## Entering Labels, Values, and Formulas

Next, you will enter the labels, values, and formulas. [Ed: See "Noteworthy Formulas" for a description of the more interesting formulas used in this template.] Some formulas will display "ERROR" messages; this temporary annoyance will be rectified when you enter sample data into the template. For now, continue with these steps:

1. Enter the labels and values from Figure 3. Remember to press Shift-" before entering labels that begin with a space, number or sym-

**Figure 4: Formulas**

| Cell | Formula   |
|------|---|
| B8   | +D4-5   |
| B9   | +D4-1   |
| A17  | +D4-10  |
| C17  | +A17+5  |
| D17  | @IF(B17<1,0,+E17/B17)                                       |
| AE17 | @SUM(E17,G17,I17,K17,M17,O17,Q17,S17,U17,W17,Y17,AA17,AC17) |
| A18  | 1+A17   |
| C18  | 5+A18   |
| F18  | @IF(E17<1,0,G18/E17)  |
| B24  | ((B43-B17)/(B17*10))+1                                      |
| D24  | @MIN(D17...D21)   |
| B25  | +B24+((B24-1)/5)  |
| D25  | @AVG(D17...D21)   |
| B26  | +B24+(((B24-1)/5)*2)  |
| D26  | @MAX(D17...D21)   |
| B31  | (H28)   |
| A39  | 1+A21   |
| C39  | 1+C21   |
| D39  | @IF(D31="L",+D24,@IF(D31="M",+D25,+D26))'                   |
| E39  | +B21*D39  |
| G39  | @ROUND(+E21*F39,0)  |
| A40  | 1+A39   |
| C40  | 1+C39   |
| D40  | +D39  |
| E40  | +B39*D40  |
| G40  | @ROUND(+E39*F40,0)  |
| B44  | @IF(B31="L",B43*B24,@IF(B31="M",B43*B25,B43*B26))'          |

Note: 'Substitute the numbers "1" and "2" for "L" and "M" if you use AppleWorks 2.1 or earlier.

bol. When you enter the value "1994" in cell D4, the year will appear as "1,994". You will fix the problem later.

2. Enter the formulas from *Figure 4*.

## Copying Cells

Now you will copy the labels, values, and formulas throughout the worksheet. When you copy formulas, use Apple-R to make all cell references "Relative" except where indicated otherwise. Follow these steps:

1. Use Apple-C to copy cells A13 through A15 "Within worksheet" to cell A35.
2. Copy cell D15 "To clipboard" as a "Block". Then copy "From clipboard" to cells F15, H15, J15, L15, N15, P15, R15, T15, V15, X15, Z15, and AB15. That puts a "(C-S)" label in alternating columns in the cohort survival sections of the table.

3. Copy cells D15 through AE15 "Within worksheet" to cell D37. That copies the column headings for cohort survival and grade enrollments into the projected enrollments section of the worksheet.
4. Copy cell D17 "Within worksheet" to cell D18.
5. Copy cell AE17 "Within worksheet" to cell AE18.
6. Copy cells A18 through AE18 "Within worksheet" to cells A19 through A21.
7. Copy "To clipboard" the "Block" of cells F18 through F21. Then copy "From clipboard" to cells H18, J18, L18, N18, P18, R18, T18, V18, X18, Z18, and AB18. Choose "Formulas and values" each time.
8. Copy "To clipboard" the "Block" of cells D24 through D26. Then copy "From clipboard" to cell F24, H24, J24, L24, N24, P24, R24, T24, V24, X24, Z24, and AB24. Choose "Formulas and values" each time.

9. Copy cell B31 "Within worksheet" to each of the following: D31, F31, H31, J31, L31, N31, P31, R31, T31, V31, X31, Z31, and AB31. Select "No change" each time.
10. Copy cell AE21 "Within worksheet" to cells AE39 and AE40. Make all cell references "Relative".
11. Copy cell A40 "Within worksheet" to cells A41 through A48.
12. Copy cell B44 "Within worksheet" to cells B45 through B48. Choose "Relative" for references to cell B43. Choose "No change" for references to other cells.
13. Copy "To clipboard" the "Block" of cells D39 and D40. Then copy "From clipboard" to cells F39, H39, J39, L39, N39, P39, R39, T39, V39,



**Figure 5: Sample Data: Births and Enrollment**

| <u>Year</u> | <u>Births</u> | <u>Year</u> | <u>Births</u> |            |            |            |            |            |            |            |             |             |             |
|-------------|---------------|-------------|---------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|
| 1984        | 2145          | 1989        | 2267          |            |            |            |            |            |            |            |             |             |             |
| 1985        | 2170          | 1990        | 2287          |            |            |            |            |            |            |            |             |             |             |
| 1986        | 2188          | 1991        | 2300          |            |            |            |            |            |            |            |             |             |             |
| 1987        | 2205          | 1992        | 2319          |            |            |            |            |            |            |            |             |             |             |
| 1988        | 2236          | 1993        | 2335          |            |            |            |            |            |            |            |             |             |             |
| <u>Year</u> | <u>KIN</u>    | <u>1st</u>  | <u>2nd</u>    | <u>3rd</u> | <u>4th</u> | <u>5th</u> | <u>6th</u> | <u>7th</u> | <u>8th</u> | <u>9th</u> | <u>10th</u> | <u>11th</u> | <u>12th</u> |
| 1989        | 1003          | 1002        | 1000          | 1001       | 992        | 990        | 995        | 993        | 990        | 985        | 982         | 958         | 943         |
| 1990        | 1006          | 1006        | 1001          | 1000       | 998        | 992        | 995        | 993        | 993        | 990        | 985         | 963         | 950         |
| 1991        | 1008          | 1014        | 1010          | 1011       | 1009       | 1001       | 1005       | 1000       | 992        | 996        | 984         | 962         | 950         |
| 1992        | 1010          | 1008        | 1004          | 1010       | 1007       | 998        | 998        | 1003       | 998        | 990        | 980         | 961         | 951         |
| 1993        | 1013          | 1010        | 1007          | 1006       | 1006       | 995        | 988        | 996        | 999        | 989        | 977         | 955         | 946         |

X39, Z39, and AB39. Choose "Formulas and values" each time.

- Copy "To clipboard" the "Block" of cells G39 and G40. Then copy "From clipboard" to cells I39, K39, M39, O39, Q39, S39, U39, W39, Y39, AA39, and AC39. Choose "Formulas and values" each time.

- Copy cells C40 through AE40 "Within worksheet" to cells C41 through C48.

## Formatting the Worksheet

Next you will add several rows, insert some labels, and format the cells of the template. Follow these steps:

- Put the cursor in cell A44 and use Apple-I to insert three rows into the template.
- Move the cursor to cell A45, the middle of the three new rows and type the phrase "Speculative projections follow: Births of kindergartners estimated."
- Use Apple-L twice to change the "Label format" of the "Block" of cells A13 through AE15 and cells A35 to AE37 to "Right justify".
- Use Apple-L to change the "Label" format of cell H28 to "Right justify".
- Use Apple-L to change the "Value format" of "Columns" A and C to "Fixed" with zero decimal places.
- Use Apple-L to change the "Value format" of column D to "Fixed" with three decimal places. That will display the cohort survival rates to the nearest thousandth. If your school system

enrolls a quarter of the students born locally, the values in this column would appear as "0.250".

- Use Apple-L to change the "Value" format of column F to "Fixed" with three decimal places. The cohort survival rates in this column are generally in the 0.950 to 1.200 range because some parents keep their children in preschool or out of school until they must legally enter first grade.
- Use Apple-L to change the "Value" format of columns H, J, L, N, P, R, T, V, X, Z, and AB to "Fixed" with three decimal places. The cohort survival rates in these columns generally vary from 0.900 to 1.100 unless schools are growing or shrinking explosively. The survival rate in tenth and eleventh grades is often low because some students leave school as soon as legally possible.
- Use Apple-L to set the "Value" format of cells D4, H8, and B9 to "Fixed" with zero decimal places.
- Press Apple-K. Your template should now look like the example in *Figure 1*.
- Put the cursor in cell D4 and save the completed template to disk.
- Lock the template. If you use AppleWorks 4, you can lock the file from the File Activities Menu. With earlier versions of AppleWorks, you can use TimeOut FileMaster, Copy II+, any other disk utility program, or BASIC to lock the template. [Ed: Step-by-step directions for locking templates appeared in the article entitled

## Noteworthy Formulas

Most of the formulas in the cohort survival template read something like this: "Take the number of second graders from last year and multiply it by the selected cohort survival factor for second to third grade. Display the result as the number of third graders next year."

The more obscure formulas include the following:

**Cell A17:** `+D4-10`

This formula establishes the starting date of the data needed by the worksheet. The formula "looks back" ten years from the date you enter in cell D4. You can adjust this formula if you have additional historical birth and enrollment records.

**Cell D17:** `@IF(B17<1,0,+E17/B17)`

This is the standard formula for calculating cohort survival. It reads: "If cell B17 contains a value that is less than 1, the template is not in use yet, so display a zero. Otherwise, calculate the cohort survival rate, which is the number of kindergartners in school in the fall of 1989 divided by the number of children born locally in 1984. The @IF statement eliminates the ERROR message that would otherwise appear before you enter data into the template.

**Cell B24:** `((B43-B17)/(B17*10))+1`

This formula calculates a positive or negative growth rate for the number of births per year. Given ten years of local birth data, the formula subtracts the oldest or "base" number of births (cell B17) from the most recent number (cell B43). Dividing the result by the base number gives the increase or decrease in birth rate. The digit "1" is added to produce a convenient factor for later multiplication. The formulas in cells B25 and B26 are built upon this formula.

**Cell D24:** `@MIN(D17...D21)`

This formula uses the @MIN function to find the lowest cohort survival rate in cells D17 through D21. A similar formula in cell D26 uses the @MAX function.

**Cell D25:** `@AVG(D17...D21)`

This formula uses the @AVG function to find the average cohort survival rate in cells D17 through D21.

**Cell D31:** `(H28)`

This formula copies the cohort survival rate in cell H28 into cell D31 (and into all copies of cell D31). Unless you change the cohort survival rates in row 31 manually, they will reflect the L, M, or H estimate entered in cell H28.

**Cell D39:** `@IF(D31="L",+D24,@IF(D31="M",+D25,+D26))`

This nested @IF statement says: "If the controlling label in cell D31 is an "L", then display the low cohort survival rate from cell D24. If the label is an "M", then display the medium or "average" cohort survival rate in cell D25. If the label is neither "L" nor "M", display the high cohort survival rate in cell D26. [Ed: You can expand the formula to test for "H" and display a message like "Oops!" if none of the three appropriate letters appears in cell D31.] This is the only formula in the template that requires AppleWorks 3.0 or later. If you substitute the numbers "1" and "2" for "L" and "M", you can use this template with any version of AppleWorks.

*"How to Lock Your Templates" in the May 1991 issue of the AppleWorks Forum.]*

## Using the Worksheet

Now you will use the template to project populations for the hypothetical school system whose birth and enrollment numbers appear in Figure 5. Follow these steps:

1. Use Apple-N to change the name of the template to COHORT.EX.

When you create worksheets for your own school system, use file names such as "HAMPTON.94" which designate the system and the year. The template is pre-set for the 1994 school year. If you want to perform a study for 1995, you would



## My Favorite Template...

change the year in cell D4. For now, leave the year as is and continue with these steps:

2. Press Apple-K. The template will display the birth years of the study in column A.

For a 1994 study, you will need births from calendar years 1984 through 1993. You will also need grade-by-grade enrollments from 1989 through 1993. You will use the numbers in *Figure 5* for this example. Continue with these steps:

3. In cells B17 through B21 enter the births for 1984 through 1988 from *Figure 5*.
4. In cells B39 through B43 enter the births for 1989 through 1993 from *Figure 5*.
5. In cells E17 through E21 enter the enrollment numbers for kindergarten students for 1989 through 1993 from *Figure 5*.
6. In cells G17 through G21, enter the first grade enrollments. Continue entering the grade-by-grade enrollments from *Figure 5* in cells 17 through 21 in columns I, K, M, O, Q, S, U, W, Y, AA, AC.
7. Press Apple-K. The template will display projected enrollments below row 33.
8. Save the worksheet to disk.

### Choosing Cohort Survival Rates

Now you can fine-tune the projections by selecting low, medium, or high cohort survival rates for the entire district (cell H28) or for individual grades (row 31). The template is pre-set at the medium cohort survival rate.

For example, suppose that a major employer downsizes or you know that the county issued few building permits last year. In that case, you could type "L" in cell H28. This tells AppleWorks that you expect a low growth rate in the school district enrollment for the next few years.

Or suppose the cohort survival rates in cells F18 through F21 are 1.100, 1.150, 1.200, and 1.250. The increasing numbers show you that the school system is enrolling a substantial number of new first graders each year. If you believe the influx will continue, you should enter "H" in cell F31 to

## Expanding the Template

When it comes to predicting school enrollments, the more data you have, the more reliable your results. If you have access to more than five years of data, you can expand the COHORT.TEMPL template to accommodate the additional figures.

For example, follow these steps to expand the template to accommodate six additional years of data:

1. Put the cursor in cell A21 and use Apple-I to insert six new rows.
2. Use Apple-C to copy cells 20 through AE20 "Within worksheet" to rows 21 through 27. Choose "Relative" for all cell references. *[Ed: You will overwrite the original contents of row 27.]*
3. Put the cursor in cell A17. Change the formula in that cell from "+D4-10" to "+D4-16" to reflect the additional six years of data.
4. Complete the worksheet by following the steps under "Using the Template".

indicate that you anticipate a high cohort survival rate.

### Printing the Results

To print a report like the example in *Figure 2*, you eliminate the columns that contain the cohort survival rates, narrow the remaining columns, eliminate several rows, and adjust the printer options. Save your file to disk and follow these steps:

1. Use Apple-N to change the name of the worksheet to PRINT.FILE or to any other meaningful name.
2. Use Apple-O and "PH" to change the "Print report Header..." option to "No". If you use AppleWorks 4, set "Recalculate before printing" to "No".
3. Set the left and right margins to "1.0" inches.
4. Change the characters-per-inch to "17" or "16", depending on which compressed print size your printer supports.
5. Use Apple-D to delete columns A and B.

6. One by one, delete columns B through N. This instruction seems unusual, but as the template shrinks, the column designations change. You want to delete the columns with the "(C-S)" heading.
7. Delete the blank column between the twelfth grade data and the "Full District" data.
8. Put the cursor in column C and use Apple-L to narrow the "Column width" for columns C through N from their default width of nine characters to six characters. The resulting table is 99 characters wide.
9. Put the cursor in row 23 and use Apple-D to delete "Rows" 23 through 34.
10. Put the cursor in row 33 and use Apple-D to delete "Rows" 33 and 34.
11. Put the cursor in cell A13 and press Apple-P to print a "Block". Press Apple-. (period) and then Apple-9 to select the block.
12. Print the report on paper or to the clipboard if you plan to include the worksheet results in a word processing document.

### Conclusion

Although this month's statistical template appears to fit a specific need, knowledgeable AppleWorks users can generalize these procedures to many other forms of population projections.

Before the advent of computers, cohort survival statistics were time consuming and tedious. Thanks to AppleWorks, the method is accessible to nearly everyone.

*[Stan Hecker is on the administrative staff at Michigan State University, East Lansing, Michigan, and is a partner in H&H Consulting, a Michigan partnership specializing in school district finance and population studies.]*

*[Ed: A working copy of the cohort survival template appears on this month's NAUG on Disk which costs \$10 from NAUG. NAUG on Disk requires a 3.5-inch disk drive; the template requires AppleWorks 3 or 4.]*

# Late News for AppleWorks Users

### Quality Releases AppleWorks 4.3

Quality Computers is now shipping AppleWorks 4.3, a major maintenance update for AppleWorks. Version 4.3 enhances many AppleWorks 4 operations and fixes more than a dozen problems with earlier versions of AppleWorks 4. (For complete details about AppleWorks 4.3, see the article entitled "AppleWorks: The Present and Future" starting on page 7 of this issue.)

NAUG members can order the AppleWorks 4.3 updater directly from the NAUG Public Domain Library for \$4 (5.25-inch disk) or \$6 (3.5-inch disk) plus \$2 s/h. NAUG members with modems can download the updater from the NAUG BBS and from other on-line services. Non-members can order the AppleWorks 4.3 updater directly from Quality for \$10.

### Brandt Announces AppleWorks 5

Randy Brandt recently announced plans to release AppleWorks 5, a major upgrade to AppleWorks. Complete details about AppleWorks 5 appear in Mr. Brandt's article entitled "AppleWorks: Present and Future" starting on page 7 in this issue of the *AppleWorks Forum*.

### Brandt Releases AppleWorks 4 File Formats

Randy Brandt recently released the file formats for AppleWorks 4. AppleWorks developers and advanced macro writers can use these data to recover damaged AppleWorks files and to develop utilities that enhance AppleWorks.

The AppleWorks file formats document appears in this month's issue of *NAUG on Disk*, which costs \$10 from NAUG. *NAUG on Disk* requires a 3.5-inch disk drive. The document is in an AppleWorks word processor file that you can read with AppleWorks 3.0 or later.

Our thanks to Mr. Brandt for updating these technical notes and for giving NAUG permission to distribute this valuable file.

## Help with ProDOS Utilities

All New Data!

Each month, the *AppleWorks Forum* lists the member-volunteers who offer technical support for AppleWorks. This month's list identifies the volunteers who can answer questions about ProDOS and disk-based utilities that can help you manage your ProDOS files. NAUG recently updated its Members Helping Members data base; this page lists the volunteers who responded by July 15, 1994.

### How to Use this List

Use this month's list to find help with ProDOS utilities. To the left of each volunteer's name are numbers indicating the utilities that consultant supports.

- |                        |                    |
|------------------------|--------------------|
| 1 = ProDOS             | 10 = Harmonie      |
| 2 = Bag of Tricks      | 11 = Independence  |
| 3 = Change-A-File      | 12 = LockOut       |
| 4 = Copy II+           | 13 = ProSel        |
| 5 = Deliverence        | 14 = RepairWorks   |
| 6 = Disk/File Recovery | 15 = Ressurrection |
| 7 = Easy Drive         | 16 = Salvation     |
| 8 = Express            | 17 = Wings         |
| 9 = File Conversion    |                    |

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New Keywords: IBM; AppleWorks 5; statistical analysis; population projection; program selectors; AppleWorks 4.3 Updater; retirement

## NAUG Classifieds

IIGS system (ROM 03), color monitor, ImageWriter II, 60 MB hard disk, 2400 baud modem, 8/32 ZipGS accelerator, 4 MB RAM, AppleWorks 1.x through 4.02, SuperPatch, lastPATCH, Orca M, Orca C, Merlin 16, ProSel-16, MD-Basic, ModemWorks, ProLine BBS, System 6.0.1. \$600. 616-381-0896.

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